

## Letters to the Editor

### Comment on 'The Critical Review Process According to ISO 14040-43: An Analysis of the Standards and Experiences Gained in their Application' by Walter Klöpffer, Int J LCA 10 (2) 98–102 (2005)

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The above mentioned article provides a valuable analysis about the critical review process according to the ISO 14040 et seq. series, making clear the different types of reviews available and their impact on the quality and the duration of LCA studies. The author remarks also the significant differences between an LCA study developed according to ISO 14040 et seq. and those not directly referring to this international standard.

In his final remarks the author raises the question whether the results of scientific papers that use comparisons between product systems only for the sake of method development and evaluation should be regarded as 'comparative assertions' and whether they need a critical review in order to be in accordance with ISO 14040 et seq.

Before I answer these questions and for the readers who are not so familiar with the topic, I would like to summarise shortly the definitions used by ISO 14040 for comparative assertion and for the critical review. In this sense, the term comparative assertion is defined in 3.2 as an "environmental claim regarding the superiority or equivalence of one product versus a competing product which performs the same function" and the term critical review in 5.1.2.5 as "a technique to verify whether an LCA study has met the requirements of this International Standard for methodology, data and reporting." The critical review is in 7.3 further divided in three critical review processes. These differentiate the internal expert review (7.3.1), where the review may be conducted via an internal, independent expert; the external expert review (7.3.2) conducted by an external, independent expert and the review by interested parties (7.3.3), where the review process is performed by a panel of at least two external experts.

In general, the critical review has an optional character but according to 7.2 "critical reviews shall be conducted on LCA studies where the results are used to support comparative assertions" and in the case of *comparative assertions disclosed to the public* 5.1.2.5 requires the most stringent critical review laid out in 7.3.3.

In my personal view, the answer to the questions raised above should address two different levels: a legal one as well as a practical one. Regarding 5.1.2.5, ISO 14040 does not leave any space for interpretation and, as the author outlines, 'shall' in this case means 'must without any exceptions.' In this respect an international standard has a rank of a law – certainly only within its own scope – and makes clear that all studies which include a comparative assertion disclosed to the public must include a critical review according to 7.3.3, as main purpose or as 'by-product' of a scientific study.

This rigorous legal position is valid for the public use of LCA results laid down in the introduction of ISO 14040: improving environmental aspects of products; decision-making in industry, governmental or non-governmental organisations; selecting relevant indicators of environmental performance and especially for marketing. Of course, the calculation of these LCA results shall be based on a sound scientific LCA method.

On the other hand, many of the scientific publications used for method development and evaluation such as internal studies or PhD theses do not include comparative assertions in the strict definition of the term and are frequently not conducted in (full) accordance with ISO 14040 et seq. Often the case studies examined are fictive or are described to illustrate certain methodological problems like allocation procedures or impact categories. In the case of companies, many LCA studies evaluate different product systems or life cycle stages of one product, e.g. a product optimisation regarding design or end-of-life options. They are not meant to show the superiority or equivalence of one product compared to a *competing product* and thus do not include 'comparative assertions' as defined by ISO 14040.

What is the added value of such studies? Their value lies in their contribution to developing new methodological aspects of LCA or in their performance of internal product optimisations and NOT in marketing of comparative assertions (no conclusions!) which need public validation by compliance with the norm.

However, even if critical reviews are not required in these cases, the review by an expert could ensure a high scientific quality of the results presented, especially for those dedicated to method development. Critical reviews according to 7.3.1 or 7.3.2 (internal or external expert review) could be the preferred option for these cases.

Concluding, I share the opinion of the author that a critical review according to 7.3.3 should always be used for comparative assertions disclosed to the public. But I recommend also the less rigorous critical review according to 7.3.1 or 7.3.2 for scientific publications, especially for those dedicated to method development and evaluation.

Applying these conclusions would promote the application and reputation of LCA without stifling valuable LCA studies from being performed and published. These deliberations should therefore be considered within the ongoing revision of the ISO 14040 et seq. series.